



#6

PATENT  
2185-0519P

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: WATANABE, Tsuyoshi Conf.:  
Appl. No.: 09/800,930 Group: UNASSIGNED  
Filed: March 8, 2001 Examiner: UNASSIGNED  
For: OLEFIN POLYMERIZATION CATALYST AND  
PROCESS FOR PRODUCING OLEFIN POLYMER

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, DC 20231

May 29, 2001

Sir:

The following preliminary amendments and remarks are respectfully submitted in connection with the above-identified application.

In the Specification:

Please replace the paragraph occurring at page 3, line 21 to line 25, with the following rewritten paragraph:

--That is, the present invention relates to an olefin polymerization catalyst prepared by contacting (A) with (C) described below, or (A), (B) and (C) described below, and further to a process for producing an olefin polymer which comprises polymerizing an olefin with said catalyst: --

Please replace the paragraph occurring at page 49, line 17 to line 26, with the following rewritten paragraph:

--The polymerization catalyst obtained by contacting the above-mentioned (A) and (C), or (A), (B) and (C) is used. As contact methods, any means can be adopted so far as contact of (A) and (C), or (A), (B) and (C) is completed to form the catalyst. For example, a method in which (A) and (C) or further (B) are mixed to contact them together after diluting at least one of them or without diluting them, and a method in which they are separately supplied in a polymerization reactor to contact them together in the reactor, and the like can be adopted.--

In the Claims:

Please amend the claims as follows:

**Claim 1.** (Amended) An olefin polymerization catalyst prepared by a process comprising contacting (A) and (C), or (A), (B) and (C) described below:

(A) a transition metal compound in which the number of a transition metal is the same as that of group having a cyclopentadiene type anion skeleton, in its molecule,

(B) at least one aluminum compound selected from the following (B1) to (B3);

(B1) an organoaluminum compound represented by the general formula  $E^1_aAlZ_{3-a}$ ,

(B2) a cyclic aluminoxane having a structure represented by the general formula  $\{-Al(E^2)-O-\}_b$ , and

(B3) a linear aluminoxane having a structure represented by the general formula  $E^3\{-Al(E^3)-O-\}_cAlE^3_2$ , wherein  $E^1$ ,  $E^2$  and  $E^3$  respectively represent a hydrocarbon group, all of  $E^1$ ,  $E^2$  and  $E^3$  may be the same or different, Z represents a hydrogen atom or a halogen atom, and all of Z may be the same or different, a represents a numeral satisfying  $0 < a \leq 3$ , b represents an integer of not less than 2, and c represents an integer of not less than 1; and

(C) a modified aluminumoxy compound obtained by reacting an aluminumoxy compound (C1) with a boron compound (C2) represented by the general formula  $BQ^1Q^2Q^3$ , wherein B is a boron atom in the trivalent valence state; and  $Q^1$ ,  $Q^2$  and  $Q^3$  are respectively a halogen atom, a hydrocarbon group, a halogenated hydrocarbon group, a substituted silyl group, an alkoxy group or a di-substituted amino group, and they may be the same or different.

Marked-up Version of Amendments

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

**R E M A R K S**

The above amendments made to the specification at pages 3 and 49, as well as the amendment to claim 1, do not incorporate new matter into the application as originally filed. The amendments merely correct a typographical error, while at the same time clarifying that the olefin polymerization catalysts are prepared by a process comprising contacting (A) and (C), or (A), (B) and (C). In this respect, the use of the modified aluminumoxy compound as the component (C) is an essential component of the claimed invention, as is clear upon reading the description at page 3, lines 13-20 and page 49, lines 17-18.

It is noted that in Comparative Examples 1-2, components (A) and (B) are used without component (C).

It is further noted that the Abstract provided with the application correctly indicates that components (A) and (C) are required ingredients, and that (B) is an optional ingredient.

Based upon the above considerations, entry of the present amendment is respectfully requested.



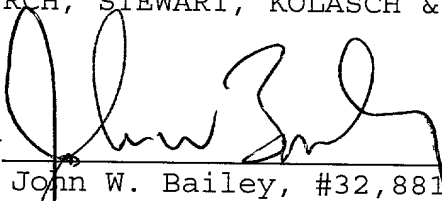
Appl. No.09/800,930  
Response filed on May 29, 2001

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By   
John W. Bailey, #32,881

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000

JWB:bmp  
2185-0519P

Attachment: Version with Markings to Show Changes Made

(Rev. 02/12/01)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The paragraph occurring at page 3, lines 21 to 25 has been amended as follows:

--That is, the present invention relates to an olefin polymerization catalyst prepared by contacting (A) with [(B)](C) described below, or (A), (B) and (C) described below, and further to a process for producing an olefin polymer which comprises polymerizing an olefin with said catalyst: --

The paragraph occurring at page 49, lines 17 to 26 has been amended as follows:

--The polymerization catalyst obtained by contacting the above-mentioned (A) and (C), or (A), (B) and (C) is used. As contact methods, any means can be adopted so far as contact of (A) and [(B)](C), or (A), (B) and (C) is completed to form the catalyst. For example, a method in which (A) and [(B)] (C) or further [(C)] (B) are mixed to contact them together after diluting

at least one of them or without diluting them, and a method in which they are separately supplied in a polymerization reactor to contact them together in the reactor, and the like can be adopted.--

In the Claims:

The claims have been amended as follows:

**Claim 1.** (Amended) An olefin polymerization catalyst prepared by a process comprising contacting (A) and [(B)] (C), or (A), (B) and (C) described below:

(A) a transition metal compound in which the number of a transition metal is the same as that of group having a cyclopentadiene type anion skeleton, in its molecule,

(B) at least one aluminum compound selected from the following (B1) to (B3);

(B1) an organoaluminum compound represented by the general formula  $E^1_aAlZ_{3-a}$ ,

(B2) a cyclic aluminoxane having a structure represented by the general formula  $\{-Al(E^2)-O-\}_b$ , and

(B3) a linear aluminoxane having a structure represented

by the general formula  $E^3\{-Al(E^3)-O-\}_cAlE^3_2$ , wherein  $E^1$ ,  $E^2$  and  $E^3$  respectively represent a hydrocarbon group, all of  $E^1$ ,  $E^2$  and  $E^3$  may be the same or different, Z represents a hydrogen atom or a halogen atom, and all of Z may be the same or different, a represents a numeral satisfying  $0 < a \leq 3$ , b represents an integer of not less than 2, and c represents an integer of not less than 1; and

(C) a modified aluminumoxy compound obtained by reacting an aluminumoxy compound (C1) with a boron compound (C2) represented by the general formula  $BQ^1Q^2Q^3$ , wherein B is a boron atom in the trivalent valence state; and  $Q^1$ ,  $Q^2$  and  $Q^3$  are respectively a halogen atom, a hydrocarbon group, a halogenated hydrocarbon group, a substituted silyl group, an alkoxy group or a di-substituted amino group, and they may be the same or different.